Gasoline, hydrocarbons, internal combustion engine, carbon dioxide, water, spark plug, compression stroke, power stroke, compression ratio, knock, octane rating, heptane, 2,2,4-trimethylpentane, petroleum, distillation, catalytic cracking, kerosene

- Complete oxidation: \( \text{CO}_2 \) and \( \text{H}_2\text{O} \) and Energy
- Incomplete: \( \text{CO} \) to carbone

Vaporilily is affected by:
1. Molecular weight
2. Boiling point

Catalytic converter: helps the complete oxidation of combusted hydrocarbons to \( \text{CO}_2 \) and \( \text{H}_2\text{O} \)
- Decrease amount of atmospheric pollutants
- Not decreased \( \text{CO}_2 \), however

\( \text{CO} \) is converted to \( \text{CO}_2 \)

Distillation separates the various components or fractions of hydrocarbons that are present in crude oil

Oxynate: adds oxygen and improves efficiency of hydrocarbon combustion
- Active enhancer: improves engine performance by reducing knock
All straight chain hydrocarbons, so make comparison on basis of boiling, lowest weight lowest boiling

<table>
<thead>
<tr>
<th>Alkanes</th>
<th>16</th>
<th>-14°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene</td>
<td>2</td>
<td>-89°C</td>
</tr>
<tr>
<td>Ethane</td>
<td>3.5</td>
<td>-89°C</td>
</tr>
<tr>
<td>Butane</td>
<td>0.5</td>
<td>-89°C</td>
</tr>
<tr>
<td>Hexane</td>
<td>1</td>
<td>-89°C</td>
</tr>
<tr>
<td>Nonane</td>
<td>2</td>
<td>-89°C</td>
</tr>
</tbody>
</table>

2 methyl propene

1,1 dimethyl propene

2 methyl butane

2,2 dimethyl butane

2,2,3 trimethyl butane

2 dimethyl propane

2 methyl heptane

Catalytic Cracker: Decane (Impure), CO

Catalytic Cracker: Tetracene, HO2

Miami in July - less volatile, higher wt., less branching

Chicago in January - more volatile, lower wt., higher branching

NEED TO OFFER EXPLANATION